Complete Summary

TITLE

Intensive care: mean length of stay (LOS) for intensive care unit (ICU) by type of unit.

SOURCE(S)

Specifications manual for national hospital quality measures - ICU. Oakbrook Terrace (IL): Joint Commission on Accreditation of Healthcare Organizations (JCAHO); 2005. various p.

Measure Domain

PRIMARY MEASURE DOMAIN

Use of Services

The validity of measures depends on how they are built. By examining the key building blocks of a measure, you can assess its validity for your purpose. For more information, visit the Measure Validity page.

SECONDARY MEASURE DOMAIN

Does not apply to this measure

Brief Abstract

DESCRIPTION

This measure is used to assess the risk-adjusted mean for intensive care unit (ICU) length of stay (LOS) stratified by type of ICU.

Note: Both observed and predicted rates are reported.

The measure rates for risk-adjusted ICU LOS should be analyzed in conjunction with the risk-adjusted hospital mortality for ICU patients. See the related National Quality Measures Clearinghouse (NQMC) measure summary Intensive care: percentage of adult patients having had an intensive care unit (ICU) stay whose hospital outcome is death.

RATIONALE

The efficient utilization of resources has become a priority in the health care environment today. Length of stay (LOS) has become an important measurement used to control costs, is commonly used as an indication of the quality of care rendered, and is a common outcome variable used to compare the performance between hospitals. Prolonged length of stay may be an indication of patient complications. Length of stay measure rates may offer a method of evaluating efficiency of intensive care unit (ICU) bed utilization and may complement mortality ratios in assessing effectiveness of care.

PRIMARY CLINICAL COMPONENT

Intensive care; length of stay (LOS)

DENOMINATOR DESCRIPTION

- Intensive care unit (ICU) patients 18 years of age or greater
- Patients who had a transplant during a previous hospitalization

See the related "Denominator Inclusions/Exclusions" field in the Complete Summary.

NUMERATOR DESCRIPTION

Continuous variable statement: mean length of stay (LOS) for intensive care unit (ICU) patients by Type of Unit

Evidence Supporting the Measure

EVIDENCE SUPPORTING THE VALUE OF MONITORING USE OF SERVICE

- One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Evidence Supporting Need for the Measure

NEED FOR THE MEASURE

Monitoring and planning

EVIDENCE SUPPORTING NEED FOR THE MEASURE

Specifications manual for national hospital quality measures - ICU. Oakbrook Terrace (IL): Joint Commission on Accreditation of Healthcare Organizations (JCAHO); 2005. various p.

State of Use of the Measure

STATE OF USE

Pilot testing

CURRENT USE

Monitoring and planning

Application of Measure in its Current Use

CARE SETTING

Hospitals

PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Measure is not provider specific

LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Single Health Care Delivery Organizations

TARGET POPULATION AGE

Age greater than or equal to 18 years

TARGET POPULATION GENDER

Either male or female

STRATIFICATION BY VULNERABLE POPULATIONS

Unspecified

Characteristics of the Primary Clinical Component

INCIDENCE/PREVALENCE

Unspecified

ASSOCIATION WITH VULNERABLE POPULATIONS

Unspecified

BURDEN OF ILLNESS

Unspecified

UTILIZATION

Unspecified

COSTS

Unspecified

Institute of Medicine National Healthcare Quality Report Categories

IOM CARE NEED

Not within an IOM Care Need

IOM DOMAIN

Not within an IOM Domain

Data Collection for the Measure

CASE FINDING

Users of care only

DESCRIPTION OF CASE FINDING

- Intensive care unit (ICU) patients 18 years of age or greater
- Patients who had a transplant during a previous hospitalization

See the related "Denominator Inclusions/Exclusions" field in the Complete Summary.

DENOMINATOR SAMPLING FRAME

Patients associated with provider

DENOMINATOR INCLUSIONS/EXCLUSIONS

Inclusions

- Intensive care unit (ICU) patients 18 years of age or greater
- Patients who had a transplant during a previous hospitalization

Exclusions

- Patients less than 18 years of age
- Patients with less than a 4-hour stay in the ICU
- Patients who expired within 4 hours of ICU arrival
- Patients with admitting diagnosis of burns
- Patients with ICU admitting surgical diagnosis of transplant (transplant occurs during the hospitalization)

RELATIONSHIP OF DENOMINATOR TO NUMERATOR

All cases in the denominator are equally eligible to appear in the numerator

DENOMINATOR (INDEX) EVENT

Institutionalization

DENOMINATOR TIME WINDOW

Time window follows index event

NUMERATOR INCLUSIONS/EXCLUSIONS

Inclusions
Continuous variable statement: mean length of stay (LOS) for intensive care unit (ICU) patients by Type of Unit

Exclusions
Unspecified

MEASURE RESULTS UNDER CONTROL OF HEALTH CARE PROFESSIONALS, ORGANIZATIONS AND/OR POLICYMAKERS

The measure results are somewhat or substantially under the control of the health care professionals, organizations and/or policymakers to whom the measure applies.

NUMERATOR TIME WINDOW

Episode of care

DATA SOURCE

Medical record

LEVEL OF DETERMINATION OF QUALITY

Does not apply to this measure

PRE-EXISTING INSTRUMENT USED

Acute Physiology and Chronic Health Evaluation (APACHE) IV®

Computation of the Measure

SCORING

Continuous Variable

INTERPRETATION OF SCORE

Undetermined

ALLOWANCE FOR PATIENT FACTORS

Analysis by subgroup (stratification on patient factors, geographic factors, etc.)
Risk adjustment method widely or commercially available

DESCRIPTION OF ALLOWANCE FOR PATIENT FACTORS

Predicted intensive care unit (ICU) length of stay (LOS) is calculated according to Acute Physiology and Chronic Health Evaluation (APACHE)® IV methodology*.

This measure is stratified** by Type of Unit.

* Refer to "ICU Risk Adjustment" section of the original measure documentation for details.

** Refer to Appendix J of the original measure documentation for details.

STANDARD OF COMPARISON

Internal time comparison

Evaluation of Measure Properties

EXTENT OF MEASURE TESTING

There were two phases of testing conducted on the intensive care unit (ICU) core measures as illustrated below:

- An alpha test that focused on feasibility of data collection and face validity, and
- A pilot test that involved a data collection period with testing for reliability of data elements required for measure calculation.

The Alpha Test

Alpha testing was conducted on an initial 9 measures in 2003. The objectives of the visits were to assess face validity, the feasibility of data collection, and to gain an understanding of the hospital's ICU environment. Face validity and feasibility of data collection were gleaned through focus group discussions, and the completion of an assessment tool for each measure tested.

Hospitals participating in the Alpha test were located in California, Indiana, Minnesota, New York, Pennsylvania, Texas, Tennessee, and Virginia. A total of 12 hospitals were visited in these states and one was accomplished through a conference call. The organizations varied from the community setting to large academic teaching hospitals. The majority of hospitals had separate Medical and Surgical Units or Mixed Medical/Surgical Units; a few had NICU's, CCU's and some

hospitals had multiple units, for example, one hospital had 6 ICUs (Burn/Trauma, Vascular Surgical, Medical/Surgical, Neuro, CCU, and Cardiac Surgery). The alpha test resulted in 6 of the 9 measures moving forward for pilot testing.

The Pilot Test

Two separate and distinct test groups comprised of volunteer hospitals were utilized for the pilot test. The test objectives for each group were as follows:

Group 1:

- To assess from a three month data collection and transmission experience the following:
    - Assessment of data element reliability
    - Assessment of data collection effort
    - Discussion and identification of potential measure specification enhancements.

Group 2:

- To assess from a one-month data collection (without transmission) experience the following:
    - Data collection effort
    - Identification of potential measure specification enhancements.

Group 1 test group was comprised of 10 hospitals already participating in the Keystone Project (collaboration with the Johns Hopkins School of Medicine and the Michigan Hospital Association (MHA) to study the impact of processes of care on ICU patient outcomes). The 10 hospitals were geographically distributed across the state. The hospitals ranged from small (83 beds) to large (greater than 1067 beds), with correspondingly sized ICUs from 5 to 20 beds. Two hospitals were experienced APACHE users.

Ten pilot test hospitals were visited to re-abstract a sample of previously transmitted records. A total of 118 records were re-abstracted. The method of data collection for re-abstraction was retrospective, whereas hospital abstraction activities were primarily concurrent. For the ventilator bundle measures (ICU 1,2,3) Joint Commission staff rounded in the ICU approximately one hour after the completion of hospital staff rounding in order to verify head of bed elevation, stress ulcer disease (SUD) and deep vein thrombolysis (DVT) prophylaxis.

Group 2 consisted of 30 hospitals that were randomly selected from approximately 100 volunteer hospitals based on geographic location, bed size, urban/rural, teaching/non-teaching, type of ICUs, intensivist/no intensivist, Apache user/non-Apache user, National Nosocomial Infections Surveillance System (NNIS)/ non-NISS hospital.

EVIDENCE FOR RELIABILITY/VALIDITY TESTING

Lawler N. (Jonit Commission on Accreditation of Healthcare Organizations (JCAHO)). Personal communication. 2006 Feb 10. 1 p.

Identifying Information

ORIGINAL TITLE

ICU-5: intensive care unit (ICU) length of stay (LOS) by type of unit.

MEASURE COLLECTION

Joint Commission Intensive Care Unit Measure Set

DEVELOPER

Joint Commission on Accreditation of Healthcare Organizations

ADAPTATION

Measure was adapted from another source.

PARENT MEASURE

Day 1 Intensive Care Unit (ICU) Length of Stay (LOS) Prediction (Cerner Corporation)

RELEASE DATE

2005 Feb

MEASURE STATUS

This is the current release of the measure.

SOURCE(S)

Specifications manual for national hospital quality measures - ICU. Oakbrook Terrace (IL): Joint Commission on Accreditation of Healthcare Organizations (JCAHO); 2005. various p.

MEASURE AVAILABILITY

The individual measure, "ICU-5: Intensive Care Unit (ICU) Length of Stay (LOS) By Type of Unit," is published in "Specifications Manual for National Hospital Quality Measures - ICU." This document is available from the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) Web site. Check the JCAHO Web site regularly for the most recent version of the Specifications Manual and for the applicable dates of discharge. For further information, refer to www.jointcommission.org.

NQMC STATUS

This NQMC summary was completed by ECRI on January 17, 2006. The information was verified by the measure developer on February 10, 2006.

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